Data Taking
2002 October 18-25

- News from the Tevatron
  - Two quenches at A1 on Fri Oct 18 at 9:50 & 23:45
    - Lost all the stack due to problems with the vertical tunes (incorrect settings)
  - Sat & Sun Oct 19-20: Store 1886 Init D0 Lumi = 33.40E30
    - Single best day for Del. & Rec. Lumi
  - Mon Oct 21: Store 1888: Init D0 Lumi = 24.15E30
    - Low transfer efficiency due to small closure at Main Injector
  - Tue Oct 22: Supervised Access 04:30-19:00
  - Wed Oct 23: Problems with F3 cooldown delayed shutdown recovery by ~one shift. Another shift to retune TeV. Quench at A11 - lost huge stack!
  - Thu Oct 24: Store 1902: Init D0 Lumi = 14.78E30
    - Small stack - Proof of principle store after problems all day Wed

Data Taking Statistics

	nb^{-1}				Hours				
Date	Del Lumi	Util Lumi	L2/L3 Lost	Rec Lumi	Store	Downtime	Events (k)	Live	Eff.
18-Oct-02	0	0	0	0	0	0	0	0	0
19-Oct-02	115.5	108.1	4.2	36.8	1	0.1	68	0.459	0.318615
20-Oct-02	1332.7	1310.4	16.3	872.9	20.9	0.4	2021	0.707	0.654986
21-Oct-02	1118.4	1079.6	15	803.2	23.5	0.9	2151	0.801	0.718169
22-Oct-02	99.6	97.2	1.9	80.7	3.9	0.1	357	0.85	0.810241
23-Oct-02	0	0	0	0	0	0	0	0	0
24-Oct-02	432.4	413.4	5.6	253.1	13.5	0.7	1357	0.648	0.585338
	3098.6	3008.7	43	2046.7	62.8	2.2	5954	0.733254	0.667406

- Total Data Taking Efficiency ➔ 66.7% *(61.4% week before)*
  - 89.9 nb^{-1} or 2.9% Lost due to Downtime
  - 919 nb^{-1} or 29.7% Lost due to Deadtime
    - Decorrelated (L2/L3/COOR Disables)
    - Correlated (FEB, SkipNextN)
  - 43 nb^{-1} or 1.4% Lost at L2/L3
- 5954 k Events from Physics Runs recorded to tape (global_CMT-8.41)

D0 Data Taking Status is linked from Run II Operations Page (xls & htm)

Sources of Downtime

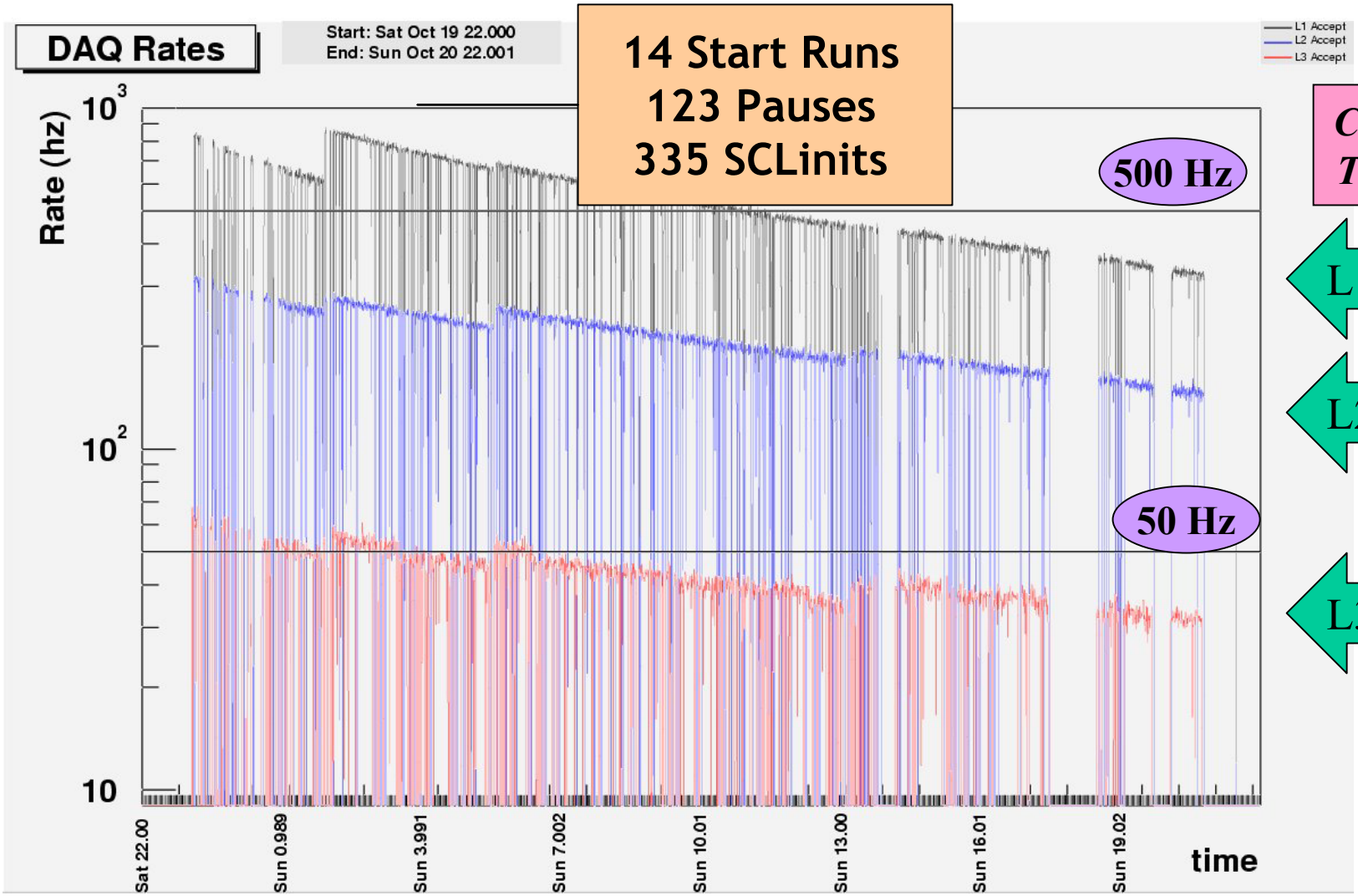
	Date	Time	Downtime (hrs)	Reason
Oct 18-24, 2002	20-Oct-02	15:31	0.57	DAQ Rate Test
	24-Oct-02	21:52	0.5	Alignment Study (no solenoid field) Special Run

- DAQ Rate Test
  - See Gustaaf's talk from ADM this morning
    - And go to DAQ Task Force web page for more info
- Alignment study
  - Needed sample of high p_T events with straight tracks
- Remaining ~1 hour of downtime
  - Begin/End stores; Stop/Start runs

Sources of Deadtime

- We are losing 25-30% of our luminosity every day
  - Deadtime = Physics run w/Recording on, triggers exposed, but no data is being collected.
- There is no single problem which affects the efficiency. Currently, the major issues are:
  - Fiber tracker requires readout crate download
  - Muon Level 2 trigger system hangs from inputs from PDTs and requires manual restart
  - Silicon readout crates go FEB
  - Forward muon tracking detector loses synchronization
  - Calorimeter readout crates require a T&C + ADC reset
- Instability is related to increase in trigger rates
  - Decision made to INCREASE prescale on Muon wide w/Tracking trigger by x2 for lumi >17E30
    - Should lower L1 rate by ~100-200 Hz & L2 rate by ~10-20 Hz

Store 1886



14 Start Runs
123 Pauses
335 SCLinits

Courtesy of Terry Toole

L1 Accept

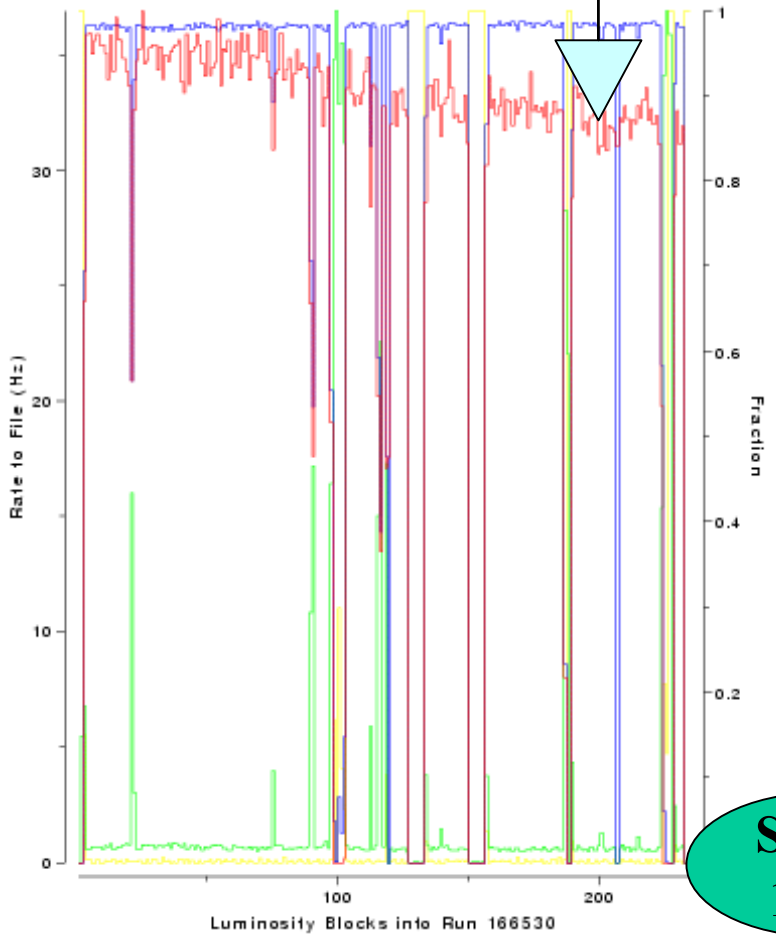
L2 Accept

L3 Accept

Lumi Reports

166530
inL=8.52
3.7 hrs
402k Evts
Live: 87%
6 SCLinits
5 Pauses

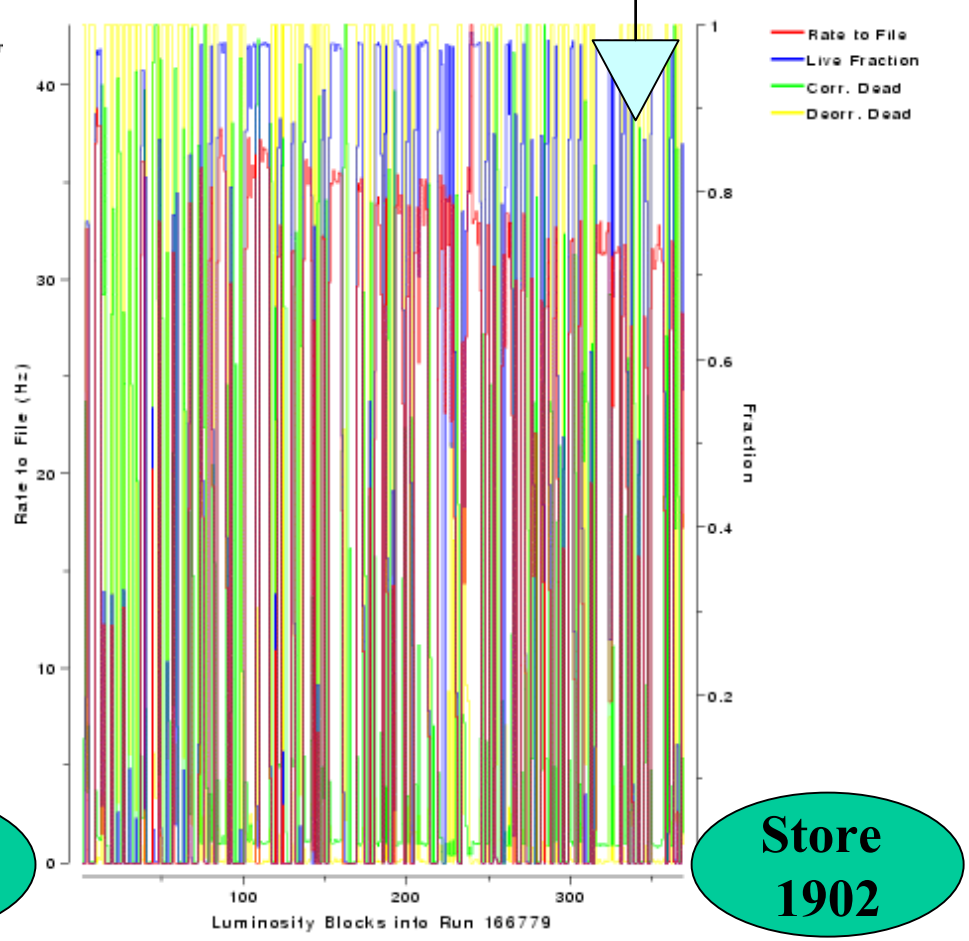
L1/L2/L3~270/135/36



Store 1888

166779
inL=10.24
4.1 hrs
293k Evts
Live: ~60%
43 SCLinits
65 Pauses

L1/L2/L3~330/190/40



Store 1902

Best Runs by Live Fraction

- All readout crates in the run
- No major high voltage or low voltage problems
- Duration greater than 3 hours
- Number of events greater than 300,000
- Rate to tape greater than 25 Hz

This Week

Last Week

Run	Store	Start Time	Delivered Lumi (nb-1)	Initial Lumi (E30)	Shift Crew	Live Fraction	Duration (hrs)	Events	Rate to Tape (Hz)
164095	1756	2002 Sep 15 18:19:15 CDT	168.69	13.11	EVE	91.5%	4.02	401371	27.6
164096	1756	2002 Sep 15 22:21:33 CDT	131.98	10.36	EVE & OWL	90.7%	3.87	404159	28.9
165008	1795	2002 Sep 27 11:08:10 CDT	128.41	9.91	DAY	90.1%	3.89	410984	29.4
164216	1764	2002 Sep 18 07:14:31 CDT	108.73	8.27	OWL & DAY	89.9%	3.99	397478	27.7
164097	1756	2002 Sep 16 02:14:28 CDT	113.70	8.64	OWL	89.7%	3.96	410163	28.7
164213	1764	2002 Sep 18 01:35:04 CDT	130.84	11.11	OWL	88.1%	3.62	399523	30.7
166530	1888	2002 Oct 21 20:38:14 CDT	106.00	8.52	EVE & OWL	87.1%	3.70	402457	30.3
165985	1841	2002 Oct 12 09:38:49 CDT	131.33	10.12	DAY	86.6%	3.84	502790	36.3
164083	1754	2002 Sep 15 04:15:11 CDT	150.63	10.39	OWL & DAY	86.2%	4.46	433550	27.1
163938	1748	2002 Sep 12 04:16:30 CDT	232.22	18.38	OWL & DAY	85.1%	4.32	508641	36.0
162009	1665	2002 Aug 15 19:07:49 CDT	144.34	13.56	EVE	85.1%	3.75	353318	28.3
165670	1826	2002 Oct 05 18:58:52 CDT	142.81	12.10	EVE	84.8%	3.53	497528	39.0
165905	1839	2002 Oct 11 01:07:56 CDT	177.61	13.10	OWL	84.6%	4.10	416736	28.3
166317	1863	2002 Oct 16 23:06:02 CDT	150.80	11.79	EVE & OWL	84.5%	3.88	411568	29.5

Best Runs by Initial Luminosity

Sorted by the Highest Initial Luminosity greater than 20E30.

- All readout crates in the run
- No major high voltage or low voltage problems
- Duration greater than 2 hours
- Number of events greater than 200,000

This Week

Last Week

Run	Store	Start Time	Delivered Lumi (nb-1)	Initial Lumi (nb-1)	Shift Crew	Duration (hrs)	Events	Rate to Tape (Hz)
166332	1865	2002 Oct 17 11:40:08 CDT	242.07	30.45	DAY	2.45	281690	31.9
165775	1834	2002 Oct 08 11:44:41 CDT	311.33	29.15	DAY	3.54	419687	33.0
164605	1787	2002 Sep 24 06:17:29 CDT	333.91	28.14	OWL & DAY	3.99	470542	32.7
165757	1832	2002 Oct 07 16:12:14 CDT	175.02	28.03	EVE	2.01	215017	29.7
164537	1781	2002 Sep 23 03:32:36 CDT	188.16	26.67	OWL	2.20	282149	35.6
166483	1886	2002 Oct 20 01:54:46 CDT	304.2	26.03	OWL	3.64	467656	35.9
166504	1888	2002 Oct 21 00:40:40 CDT	297.23	23.07	OWL	4.01	431975	30.0
163972	1750	2002 Sep 13 01:34:17 CDT	318.54	23.70	OWL	4.37	445097	28.3
163118	1668	2002 Sep 02 00:07:48 CDT	180.94	22.72	OWL	2.49	246950	27.5
163084	1713	2002 Aug 31 20:46:19 CDT	198.44	22.48	EVE	2.75	322932	32.6
160686	1594	2002 Jul 28 17:55:57 CDT	246.72	21.74	EVE	4.06	458431	31.38
165776	1834	2002 Oct 08 15:18:56 CDT	184.97	21.47	DAY & EVE	2.63	284933	30.7
164539	1781	2002 Sep 23 06:01:31 CDT	270.40	21.31	OWL & DAY	3.99	351777	24.5
162624	1691	2002 Aug 26 10:26:58 CDT	140.82	20.80	DAY	2.03	312470	42.3
163171	1723	2002 Sep 02 20:10:59 CDT	233.93	20.76	EVE	3.69	440644	33.2
162064	1668	2002 Aug 17 14:09:17 CDT	132.01	20.45	DAY & EVE	2.08	225134	29.8

Best Days by Recorded Luminosity

- Recorded luminosity greater than 500 nb-1
- Recorded events greater than 1000k

This Week

Last Week

Stores	Date	Delivered Lumi (nb-1)	Recorded Lumi (nb-1)	In Store (hrs)	Events (in k)	Rate to Tape (Hz)
1886	2002 Oct 20	1332.7	872.9	20.9	2021	27.5
1832, 1834	2002 Oct 08	1264.8	828.1	20.3	2074	29.3
1830, 1832	2002 Oct 07	1143.5	808.3	20.8	1913	26.5
1888	2002 Oct 21	1118.4	803.2	23.5	2151	26.6
1754, 1756	2002 Sep 15	823.9	717.3	21.2	2076	27.8
1826, 1828	2002 Oct 05	1000.5	705.6	19.8	1983	28.3
1824, 1826	2002 Oct 04	1106.6	671.4	18.9	1599	26.6
1839, 1841	2002 Oct 11	929.1	618.2	16.8	1567	30.0
1787	2002 Sep 24	1036.9	581.0	17.8	1251	22.3
1770	2002 Sep 20	856.0	575.5	21.8	1800	23.7
1750, 1752	2002 Sep 13	1068.2	560.8	19.8	1443	23.8
1863, 1865	2002 Oct 17	965.5	556.5	14.7	1368	27.4
1687,1689	2002 Aug 25	884.4	539.6	21.1	1848	26.3
1828,1830	2002 Oct 06	862.4	536.7	14.3	1170	27.4
1834,1836	2002 Oct 09	1273.3	515.3	19.0	1223	24.3
1752, 1754	2002 Sep 14	786.4	508.3	18.4	1480	23.1
1711,1713	2002 Aug 31	943.9	505.6	20.4	1774	27.2
1507	2002 Jul 8	674.9	505.1	19.9	1947	27.6
1737	2002 Sep 8	694.4	504.4	15.5	1410	26.0
1748	2002 Sep 12	727.4	500.2	15.7	1377	26.3

Plans for Upcoming Week

- Current trigger list: global_CMT-8.41
  - Streaming & 9.0 are pending ~ next week or two
- Back off peak L1/L2/L3 rates ~ 800/300/50 Hz
  - Stability is an issue - our efficiency is only 60-65%
  - Feed the daqAI so we can track problems
- Stack 'N Store rest of October
  - No scheduled shutdowns
  - Controlled Accesses - prefer to go in under CDF request or Tevatron failure (quench)
    - CDF has requested two: Wed & Fri owl shifts
      - We took advantage of the latter